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Air Operating Permit
Excess Emissions Report
Form Part II

Name of Facility	Shell, Puget Sound Refinery	Reported by	Tim Figgie
Date of notification	June 19, 2010	Incident type: breakdown/ upset/startup or shutdown	Shutdown
Start Date	June 19, 2010	Start Time:	9:30 AM
End Date	June 19, 2010	End Time:	11:00 AM
Process unit or system(s): CRU1			

Incident Description

On June 19, 2010 at approximately 9:30 AM a small tube leak in the convection section of the CRU1 process heater 6D-F2 caused a light opacity from the heater stack. Operations immediately began the shutdown procedures for this heater. During the shutdown process, at about 10:15 am, another tube ruptured causing naphtha to enter the firebox and catch on fire. This larger leak caused heavy smoke from the heater stack. The heater was repaired and put back in service on June 28, 2010. An investigation of this incident was conducted and it was determined that dry point corrosion caused premature weakening of tube walls, which resulted in the initial tube leak. The second rupture was the result of over-heating from the first leak. To prevent a reoccurrence, dry point temperatures will be monitored to limit the corrosion potential.

Immediate steps taken to limit the duration and/or quantity of excess emissions:

The heater was shutdown as soon as practicable.

Applicable air operating permit term(s): 5.5.1

Estimated Excess Emissions:	Pollutant(s):	Pounds (Estimate):
Based on SO2 CEMS and calculated stack flow	Opacity	Negligible

The incident was the result of the following (check all that apply):

- ☐ Scheduled equipment startup
- ☐ Scheduled equipment shutdown
- ☐ Poor or inadequate design
- ☐ Careless, poor, or inadequate operation
- ☐ Poor or inadequate maintenance
- ☐ A reasonably preventable condition

Did the facility receive any complaints from the public?

- ☒ No
- ☐ Yes (provide details below)

Did the incident result in the violation of an ambient air quality standard

- ☒ No
- ☐ Yes (provide details below)

Root and other contributing causes of incident:

An investigation of this incident was conducted and it was determined that dry point corrosion caused premature weakening of tube walls, which resulted in the initial tube leak. The second rupture was the result of over-heating from the first leak. To prevent a reoccurrence, dry point temperatures will be monitored to limit the corrosion potential.

The root cause of the incident was:
(The retention of records of all required monitoring data and support information shall be kept for a period of five years from the date of the report as per the WAC regulation (173-401-615))

☒ Identified for the first time
☐ Identified as a recurrence (explain previous incident(s) below – provide dates)

Are the emissions from the incident exempted by the NSPS or NESHAP "malfunction" definitions below?

☐ No
☒ Yes (describe below)

An investigation of this incident was conducted and it was determined that dry point corrosion caused premature weakening of tube walls, which resulted in the initial tube leak. The second rupture was the result of over-heating from the first leak. To prevent a reoccurrence, dry point temperatures will be monitored to limit the corrosion potential.

Definition of NSPS "Malfunction": Any sudden, infrequent, and not reasonably preventable failure of air pollution control equipment, process equipment, or failure of a process to operate in a normal or usual manner. Failures that are caused in part by poor maintenance or careless operation are not malfunctions. 40 CFR 60.2
Definition of NESHAP "Malfunction": Any sudden, infrequent, and not reasonably preventable failure of air pollution control and monitoring equipment, process equipment, or a process to operate in a normal or usual manner which causes, or has the potential to cause, the emission limitations in an applicable standard to be exceeded. Failures that are caused in part by poor maintenance or careless operation are not malfunctions. 40 CFR 63.2

Analyses of measures available to reduce likelihood of recurrence (evaluate possible design, operational, and maintenance changes; discuss alternatives, probable effectiveness, and cost; determine if an outside consultant should be retained to assist with analyses):

An investigation of this incident was conducted and it was determined that dry point corrosion caused premature weakening of tube walls, which resulted in the tube leak. To prevent a reoccurrence, dry point temperatures will be monitored to limit the corrosion potential.

Description of corrective action to be taken (include commencement and completion dates):

See above

If correction not required, explain basis for conclusion:

See above

Attach Reports, Reference Documents, and Other Backup Material as Necessary. This report satisfies the requirements of both NWCAA regulation 340, 341, 342 and the WAC regulation (173-400-107).

Is the investigation continuing? ☒No ☐Yes
Is the source requesting additional time for completion of the report? ☒No ☐Yes

Based upon information and belief formed after reasonable inquiry, I certify that the statements and information in this document and all referenced documents and attachments are true, accurate and complete.

Prepared By: _ Investigation Team __ Date: ___July 7, 2010

Responsible Official or Designee: Sara G Kramer Date: 7/26/10